

CLAIMS

Therefore, having thus described the invention, at least the following is claimed.

- 1 1. A toilet bowl cleaner comprising:
2 a surfactant; and
3 an effervescent system including an acid, wherein the effervescent system
4 produces a significant level of foam in a toilet bowl; and
5 wherein the cleaner has a pH from approximately 1.6 to approximately 2.2.
- 1 2. The composition of claim 1, wherein the effervescent system further comprises a
2 hypochlorite generator.
- 1 3. The composition of claim 1, wherein the acid comprises:
2 sulfamic acid; and
3 sodium bisulfate.
- 1 4. The composition of claim 2, wherein the hypochlorite generator comprises from
2 approximately 0.1% to approximately 20% by weight of the composition.
- 1 5. The composition of claim 2, wherein the hypochlorite generator is chosen from at
2 least one of: chlorinated isocyanurates, alkali metal hypochlorites, and alkaline earth
3 metal hypochlorites.
- 1 6. The composition of claim 4, wherein the chlorinated isocyanurate is
2 dichloroisocyanurate.

1 7. The composition of claim 4, wherein the alkali metal hypochlorite is chosen from
2 at least one of: lithium hypochlorite, magnesium hypochlorite, and calcium hypochlorite.

1 8. The composition of claim 1, wherein the effervescent system comprises from
2 approximately 20% to approximately 90% by weight of the composition.

1 9. The composition of claim 1, wherein the effervescent system further comprises:
2 an alkali metal carbonate; and
3 an acid.

1 10. The composition of claim 9, wherein the alkali metal carbonate is chosen from:
2 sodium carbonate, sodium bicarbonate, potassium carbonate, and potassium bicarbonate.

1 11. The composition of claim 9, wherein the acid is chosen from at least one of:
2 citric; maleic; fumaric; adipic; potassium phosphate; sodium phosphate, monobasic;
3 oxalic; lactic; sulfamic; tartaric; sodium bisulfite; sodium pyrophosphate; and potassium
4 pyrophosphate.

1 12. The composition of claim 1, wherein the level of foam is approximately one inch
2 above a water line in the toilet bowl.

1 13. The composition of claim 1, further comprising at least one of:
2 an enzyme;
3 a binder;
4 a lubricant; and
5 a fragrance.

1 14. The composition of claim 13, wherein the surfactant is chosen from at least one
2 of: alkylated, sulfonated diphenyl oxide; disodium salt; sodium lauryl sulphate; and alkyl
3 benzene sulfonates.

1 15. The composition of claim 13, wherein the surfactant comprises a mixture of a
2 C₁₂₋₂₀ ethoxylated alcohol and a sodium C₁₄₋₁₆ olefin sulfonate.

1 16. The composition of claim 13, wherein the surfactant comprises approximately
2 0.1% to approximately 5% by weight of the composition.

1 17. The composition of claim 13, wherein the binder comprises up to approximately
2 20% by weight of the composition.

1 18. The composition of claim 13, wherein the binder is chosen from at least one of:
2 polyethylene glycol, sorbitol, maltodextrin, and sugars.

1 19. The composition of claim 13, wherein the lubricant comprises up to
2 approximately 10% by weight of the composition.

1 20. The composition of claim 13, wherein the lubricant is chosen from at least one of:
2 sodium benzoate, stearates, mineral oil, silicates, and algenic acid.

1 21. The composition of claim 13, wherein the enzyme comprises from approximately
2 0.1% to approximately 1.25% by weight of the composition.

1 22. The composition of claim 13, wherein the enzyme is chosen from at least one of: a
2 cellulose, a protease, and a lipase.

1 23. The composition of claim 13, wherein the enzyme is chosen from at least one of:
2 endo-cellulose, exo-cellulose, cellobiase, xylanase, pentosanase, polygalacturonase, and
3 beta-glucanase.

- 1 24. A method of producing a toilet bowl cleaner, comprising:
2 blending starting materials; and
3 forming an effervescent tablet from the starting materials.
- 1 25. The method of claim 24, wherein the starting materials comprise:
2 a surfactant; and
3 an effervescent system including an acid,
4 wherein the starting materials have a pH from approximately 1.6 to approximately
5 2.2.
- 1 26. The method of claim 24, wherein the starting materials further comprise at least
2 one of:
3 a binder; and
4 a fragrance.
- 1 27. The method of claim 24, further comprising blending a lubricant into the starting
2 materials.
- 1 28. The method of claim 24, further comprising packaging the tablet in a moisture-
2 resistant pouch.

- 1 29. The method of producing a toilet bowl cleaner, comprising:
2 blending starting materials comprising
3 a surfactant and
4 an effervescent system including an acid,
5 wherein the starting materials have a pH from approximately 1.6 to
6 approximately 2.2;
7 blending a lubricant into the blended starting materials;
8 compacting and milling the blended lubricant and starting materials into granules;
9 classifying the granules by size; and
10 packaging the granules of a desired size into moisture-resistant packages.

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